

WHAT IS CLAIMED IS:

1. A carrier dispatch and transfer method comprising the steps of:

(A) setting basic data about the dispatch of carriers; and

5 (B) actuating an optimal carrier dispatch and transfer table for generating elements with a kernel of genetic algorithm by a multi-thread method to search setting confinement conditions and object, and comprising the steps of:

10 (B1) generating a plurality of initial samples randomly, each initial sample including a two dimensional carrier dispatch encoding table having a plurality of transportation duties, the carrier dispatch encoding table having longitudinal indexes for representing carriers and transversal indexes for representing time sequences, the carrier dispatch encoding table and its transportation duties corresponding to chromosomes and genes in a genetic algorithm; and

15 (B2) utilizing the samples as parent generations, and estimating the samples according to a defined object function and a confinement formula for getting fitness values of the samples of the chromosomes;

(B3) by rule of roulette wheel, enhancing selection possibilities of chromosomes with relative superior fitness values;

(B4) performing processes of chromosome crossover and mutation by the selection possibilities of single point cutting and double point cutting;

20 (B5) performing a process of sample update by local gene exchange, wherein a fitness value of each sample is determined from the object function and a disobeying cost of the confinement formula; and

25 (B6) when the processes executed having achieved a limited value or the disobeying number of the confinement formula is zero, and variation of the sample fitness value is within a preset value, the process being ended; otherwise, utilizing the acquired samples as a parent generation and repeating the steps of (B2) to (B5).

2. The carrier dispatch and transfer method as claimed in claim 1, wherein in step (B3), the selection possibility is responsive to the fitness value of each chromosome.

5 3. The carrier dispatch and transfer method as claimed in claim 1, wherein in step (B4), the chromosome crossover is performed by exchanging gene groups for generating filial generations from superior parent generations.

4. The carrier dispatch and transfer method as claimed in claim 3, wherein in the chromosome crossover, the chromosome is cut longitudinally.

10 5. The carrier dispatch and transfer method as claimed in claim 4, wherein in chromosome crossover, if the selection possibility is larger than a predetermined possibility, the chromosome crossover is performed by a two point cutting process, and if not, a single point cutting process is performed in the chromosome crossover process.

15 6. The carrier dispatch and transfer method as claimed in claim 1, wherein in the mutation of step (B4), a partial gene exchange method is utilized, so that a variety of samples are generated and a searching space of the samples is enlarged to avoid getting a local optimal solution.

20 7. The carrier dispatch and transfer method as claimed in claim 6, wherein in mutation, if the selected possibility is larger than a preset possibility, a time for mutation is selected, and a carrier resource for performing mutation is searched and two carrier resources in the time are exchanged.

8. The carrier dispatch and transfer method as claimed in claim 1, further comprising a step (C) for outputting an optimal carrier dispatch and transfer table.

25 9. The carrier dispatch and transfer method as claimed in claim 1, wherein the confinement conditions include carrier preparing time, flight time without refueling,

time that the carrier is not in a maintenance base, mealtime of the service members, and flight transportation time.

10. The carrier dispatch and transfer method as claimed in claim 9, wherein the disobeying cost of the confinement is the product of the number of times that the chromosomes disobey the confinement and the corresponding penalty value.

11. The carrier dispatch and transfer method as claimed in claim 9, wherein the chromosome object function comprises an efficiency of a carrier and the same takeoff and landing place of continuous flights.

12. The carrier dispatch and transfer method as claimed in claim 11, wherein the fitness value of the chromosome is:

$$\text{SCORE} = \text{Cost_FIFO} + \text{Cost_ModDispatch} + \text{Penalty_Cons}$$

where Cost_FIFO is the cost that a flight connecting time is overlarge; Cost_ModDispatch is the cost of carrier dispatch; and Penalty_Cons is the confinement disobeying cost.

13. The carrier dispatch and transfer method as claimed in claim 12, wherein the Penalty_Cons is zero.